

HEMIONITIS FORMOSANA (HAYATA) CHRISTENH. A NEW RECORD TO THE PTERIDOPHYTIC FLORA OF RAJASTHAN, INDIA

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ABSTRACT

Hemionitis formosana (Hayata) Christenh. is a new record to the pteridophytic flora of Rajasthan. This new species is reported for the first time from the Kumbhalgarh Wildlife Sanctuary of Rajasthan. Taxonomical descriptions, photographs, distribution, and status are presented in this paper.

KEYWORDS: Kumbhalgarh Wildlife Sanctuary, *Hemionitis*

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INTRODUCTION

Hemionitis L. is a genus of silver ferns in the Pteridaceae E.D.M. Kirchn. family. The 610.53-square-kilometer Kumbhalgarh Wildlife Sanctuary is located in the south central section of Rajasthan, between 25°-25°40' N latitude and 73°2'-73°30' E longitude. The sanctuary spans the districts of Udaipur, Pali, Ajmer, and Rajsamand in the state and serves as a distinct ecotone between the Aravallis highland forests and the Thar Desert in the west, acting as a barrier, preventing the desert from spreading eastward. The soil is mostly gravelly and sandy loam. The forest area is very undulating, with fragmented ranges of hills varying in elevation from 300 to 4000 feet above mean sea level. (Beddome 1883; Hope 1899; Ching 1935; Ching 1941; Copland 1947; Kanodia and Deshpande, 1962; Panigrahi 1960; Nayar 1962; Bir and Verma, 1963; Vyas, 1965; Mital, 1969; Sharma and Bhardwaja, 1976; Sharma et al., 1978; Gena et al., 1979; Bhardwaja et al., 1981; Wu 1981; Saiki 1984 a,b,c; Gena and Bhardwaja, 1984; Sharma et al., 1988; Wu 1990; Fraser Jenkins 1997; Gena, 1998; Gastony and Rollo 1998; Yadav et al., 2002; Singh and Panigrahi 2005; Chaudhary and Dulawat, 2006; Chaudhary and Khichi, 2006; Zhang et al. 2007; Chandra et al. 2008; Punetha et al. 2008; Dulawat and Chaudhary, 2008; Yadav, 2010; Yadav et al., 2011. As currently known, this group, whose members are predominantly, though not all, shade and moisture loving plants are represented in the state by 21 genera and 43 species (Gena, 1998; Dulawat and Chaudhary, 2008; Fraser-Jenkins and Dulawat, 2006 [Syn. *Aleuritopteris formosana* (Hayata) Tagawa] (Table 8- 14, Figure 1A - G)

Hemionitis formosana (Hayata) Christenh. Indian Fern J. **1**: 90 (1984). *Cheilanthes anceps* (Blanford) var. *Brevifrons* Khullar, Amer. Fern J. **66**: 4, 1976. *Aleuritopteris pseudofarinosa* Ching et S.K. Wu, Acta Phytotax. Sin. **19**: 72, 1985. A summary of Indian Cheilantheid ferns including the discovery of *Nigritopteris* (Pteridaceae), an Afro-Arabic fern genus unknown to India, by Fraser-Jenkins and Dulawat. Fern Gazette, vol. 18, no. 15, pp. 216-226.

Rhizome short, erect, apex scaly; scales brown, bicolorous 0.39-0.85 mm broad, 2.61-4.03 mm long; stipe length variable 8.0 - 12.3 cm long, dark-brown, thin, generally shorter or equal to the lamina. stipe scales 0.64-0.97 mm broad,

2.58-3.52 mm long, brown, bicolorous (central region dark margin pale), linear lanceolate, margin entire, apex acute to acuminate, lamina 6.3-10.2 cm. long, glossy, rachis scaly, scales as on rhizome but smaller and becoming concolorous; lamina pinnate or 2-pinnate, small, more or less oblong lanceolate, apex acuminate, texture thick, lower surface farinose, farina bright white, upper surface dark-green, glabrous; pinnae 6-9 pairs, sub-opposite to alternate, sessile, margin deeply lobed to the costa; basiscopic lobes (or pinnules) larger than the aeroscopic ones; lowest pinnae distant, of the same size as the 2-3 above, 3.0 cm long, 2.0 cm wide (at base), lobed shoulder to shore, basecopic lobes Costa and costule glabrous: light-brown indusia, deep and uneven lobed edge, extremely shrinky, long, discontinuous. Long-displayed, 3.9-4.5 cm long, 2.6-3.5 cm wide, broadest over medium.

Spores: Brown, $52.5 \times 60 \mu\text{m}$, globose, perinate, reticulate thickenings appearing like marginal projections.

Upper epidermis: Epidermal cells elongated sinuous, $40-75 \mu\text{m}$ broad $115-190 \mu\text{m}$ long; frond hypostomatic.

Lower epidermis: Epidermal cells isodimetric thin walled, sinuous, $25-35 \mu\text{m}$ broad, $90-150 \mu\text{m}$ long; stomata elliptic, $35 - 40 \mu\text{m}$ broad, $40-45 \mu\text{m}$ long, 2-6 epidermal cells surrounding the stomata.

Stomata type: Anisocytic and diacytic.

Habitat: Grows in rock crevices at lower altitudes.

Distribution: Fort region and Parshuram Mahadev hills.

Status: Rare

DISCUSSION

This protected region has been recorded for the first time with *Hemionitis formosana* (Hayata) Christenh. This suggests that there could be numerous more pteridophyte species in this protected area. New taxa are being added to the pteridophytic riches of Rajasthan, India, on a regular basis

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Figure 1 (A-G) Morphological features of *Hemionitis formosana*(Hayata) Christenh.A. *Hemionitis formosana*(Hayata) Christenh.B. Stomata on upper epidermis.C.Stomata on lower epidermis.D. Stipescale.E.Rhizome scale.F.Indusium.G. Spores

